

# Does implicit mentalising involve the representation of others' mental state content?

## Examining domain-specificity with an adapted Joint Simon task: A Registered Report

North West  
Social Science  
Doctoral Training  
Partnership



Economic  
and Social  
Research Council

Malcolm KY Wong, Marina Bazhydai, J. Jessica Wang

Department of Psychology, Lancaster University, Lancaster, UK



### Introduction

- **Implicit mentalising**: Automatic awareness of others' perspectives.
- Occurs even when **detrimental to task-performance**; e.g., Visual perspective-taking.
- **Joint Simon Effect (JSE)**: Spatially-defined response to non-spatial stimuli features (**spatial compatibility effect; SCE**) is **stronger** in **Joint Simon** (task-sharing) vs. **Individual** go/no-go task.
- Result of **implicit mentalising** during **task-sharing**, re-establishing SCE?
- **Domain-Specificity** of JSE has been hotly debated.
- Is JSE driven by **social domain-specific mechanisms**, or does it recruit **non-social, domain-general processes**?
- No consensus in literature; possible insight from examining **what is being co-represented** during task sharing, operationalised through an adapted Joint Simon and incidental memory tasks?

### Research Aims

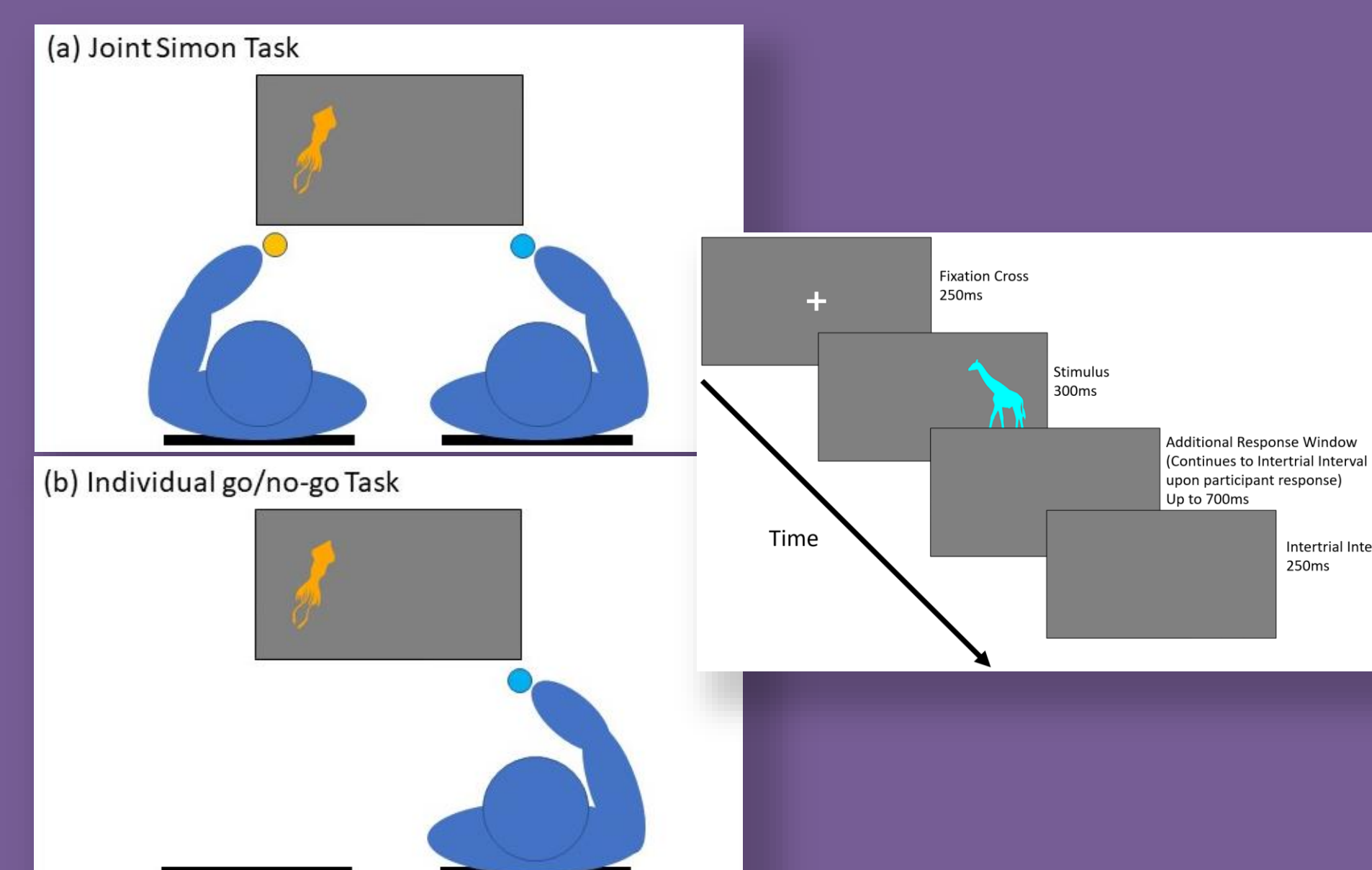
1. Validate if adapted Simon Task elicits JSE.
2. Examine contents of co-representation.
3. Examine effect of interpersonal closeness on JSE & content co-representation.
4. Test if SCE magnitude predicts degree of content co-representation.

### Participants

Study 1: Undergraduate students,  
 $N = 52$  ( $M = 18.80$  years,  $SD = 2.32$ ; 40 females)  
Study 2: 4-7-year-old children (In Progress)

### Phase 1: Adapted Simon Task

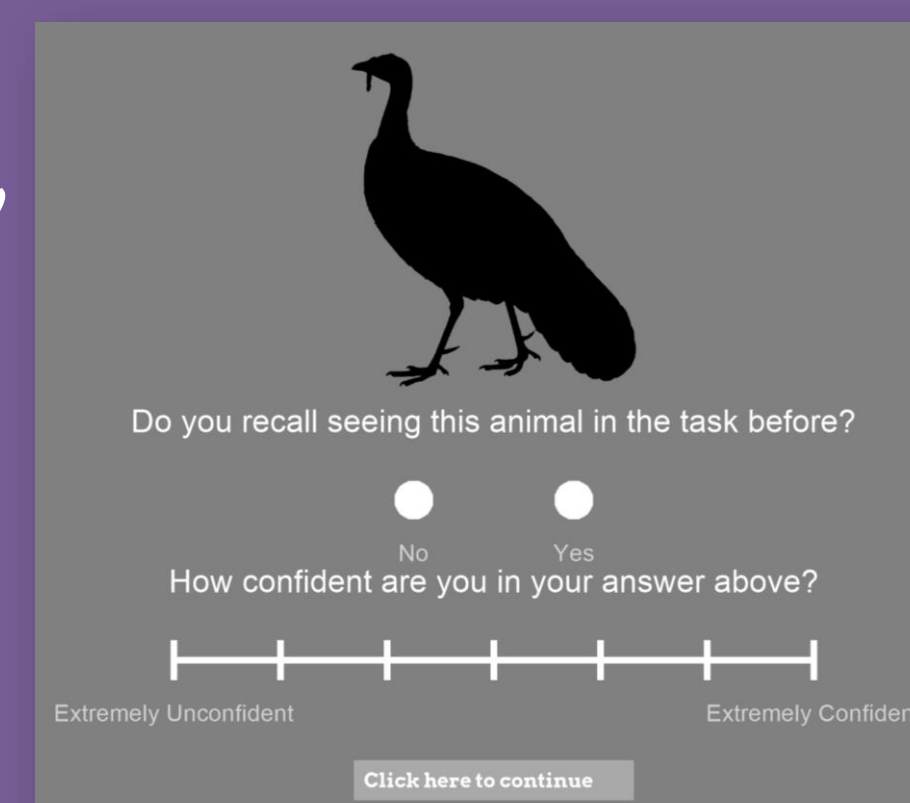
- Participants are assigned one colour (blue/orange) to respond to, regardless of stimuli location (left/right).
- Critical novel manipulation: **Replaced** typical Simon task geometric stimuli with unique sets of coloured **animal silhouettes** (blue/orange).
- 2 between-pt (**Task Condition: Joint vs. Individual**) x 2 within-pt (**Compatibility: Compatible vs. Incompatible**) design.
- Measured *Response Time (RT)* as the DV.



### Phase 2: Surprise Recognition Task

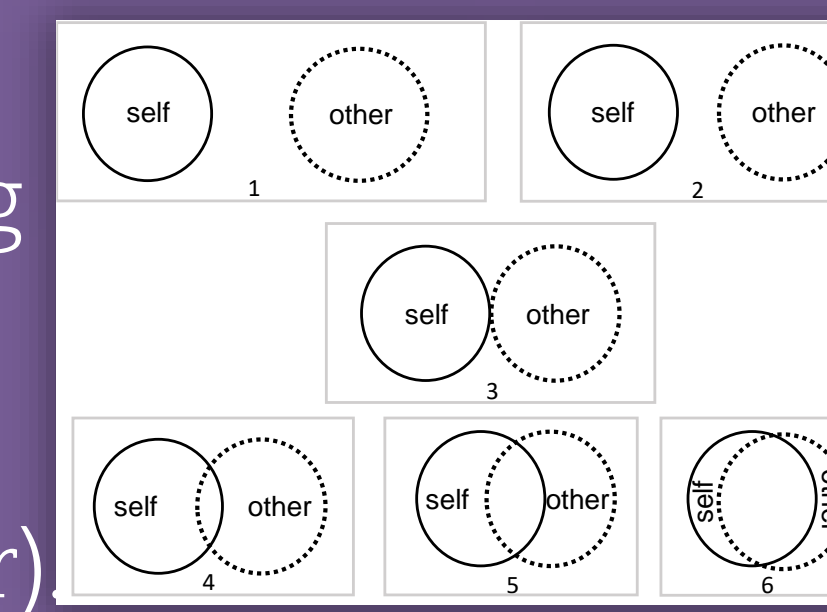
- Asked if participants recall seeing certain animal silhouettes appearing in the Phase 1 (new silhouettes were mixed in as foils).
- 2 between-pt (**Task Condition: Joint vs. Individual**) x 2 within-pt (**Colour Assignment: Self-assigned vs. Other-assigned**) design.

- Measured *Recognition Accuracy* as DV – Proxy for **degree of incidental processing & encoding** of stimuli in the Simon task.



### Phase 3: Interpersonal Closeness

- Inclusion of the Other in the Self (IOS) scale assessed **interpersonal closeness** of **partners** in the Joint Task Condition.
- 6-point scale, with increasingly overlapping circles of "self" (i.e., the participant) and the "other" (i.e., task partner)

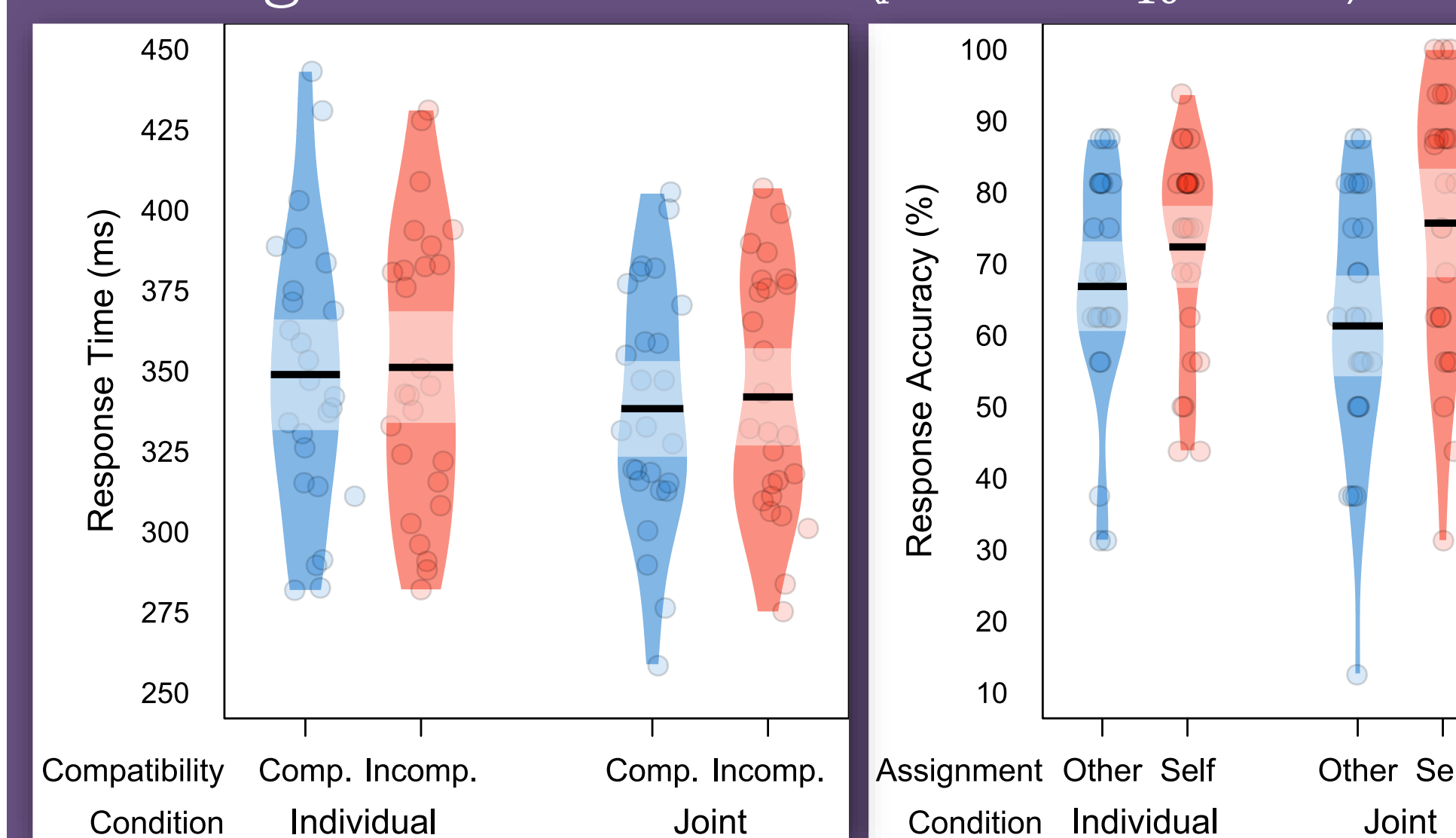


### Hypotheses

1. Stronger Compatibility effect in Joint than Individual Condition.
2. Better Recognition Accuracy of Other-assigned (vs. Self-assigned) stimuli in Joint than Individual Condition.
3. Higher IOS scores will predict larger SCE magnitude and higher Other-assigned stimuli Recognition Accuracy.
4. Larger SCE magnitudes will predict higher Other-assigned stimuli Recognition Accuracy.

### Key Results (Study 1: Adults)

1. No significant Task Condition x Compatibility interaction ( $p=.053$ ,  $BF_{10}=0.019$ ).
2. No significant Task Condition x Assignment interaction ( $p=.052$ ,  $BF_{10}=0.154$ ).



3. No significant IOS x Assignment interaction ( $p=.088$ ,  $BF_{10}=0.154$ ).

### Conclusions

- Present study **did not elicit the JSE** – possibly due to experimental alterations, and/or changes to analyses methods.
- Bayesian evidence indicates that **Joint Condition** participants **did not recognise Other-assigned** stimuli **better** than participants in the **Individual Condition**.
- IOS did not predict Recognition Accuracy.
- Overall, results point to a **domain-general explanation** of the JSE, suggesting that the JSE **may not involve co-representation** of a partner's stimuli (vs. non-assigned stimuli in the Individual condition).

### Future Studies

- Confirm the **reason for failing to replicate the JSE** using the current paradigm.
- Expand population to **younger children** to test if the **present findings** are **consistent** from **childhood to adulthood**.
- Account for **individual differences** in **Theory of Mind (ToM)** and **memory**.
- ToM rapidly matures from 4+ years; may be informative to test if **ToM ability** and/or **Age (4-7years)** **positively predicts** the **strength of JSE** and/or **Recog. Accuracy**.
- An **effect of ToM** may suggest that **implicit mentalising** is influenced by **domain-specific mechanisms** (at least in children).

Registered  
Report QR Code

